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(FILE 'USPAT' ENTERED AT 12:23:11 ON 25 SEP 96)

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L1 100 S HPV
L2 223 C HUMAN PAPILLOMA?
L3 290 S L1 OR L2
L4 25457 S "L1"
L5 20 C L2 AND L4
L6 168317 S CONFORM?
L7 144 S L4(P)LG
L8 1 S L7 AND L3

=> d 15 1-28

1. 5,554,538, Sep. 10, 1996, DNA sequences derived from papillomavirus **HPV**-33 genome; Stewart Cole, et al., 435/320.1; 536/23.72, 24.1, 24.32 [IMAGE AVAILABLE]
2. 5,543,294, Aug. 6, 1996, Polymerase chain reaction/restriction fragment length polymorphism method for the detection and typing of cyobacteria; Saul J. Silverstein, et al., 435/6; 536/24.32 [IMAGE AVAILABLE]
3. 5,534,439, Jul. 9, 1996, Isolated DNA of **human** **papillomavirus** type 55 (HPV55); Gerard Orth, et al., 435/320.1, 172.3, 235.1, 252.3; 536/23.1, 23.74 [IMAGE AVAILABLE]
4. 5,527,898, Jun. 18, 1996, Detection of **human** **papillomavirus** by the polymerase chain reaction; Heidi M. Bauer, et al., 536/24.3; 435/5, 6, 91.1, 91.2; 436/501; 536/23.1, 24.1, 24.31, 24.32, 24.33; 935/7, 9, 77, 78 [IMAGE AVAILABLE]
5. 5,495,006, Feb. 27, 1996, Antiviral polynucleotide conjugates; Shane Climie, et al., 530/24.1; 435/5; 536/23.1 [IMAGE AVAILABLE]
6. 5,485,453, Jan. 23, 1996, Antibodies to **human** **papillomavirus** latent proteins, diagnostic systems and methods; Joakim Dillner, et al., 435/5, 7.92, 975; 436/518, 549 [IMAGE AVAILABLE]
7. 5,484,599, Jan. 16, 1996, Nucleotide sequences useful as type specific probes, PCR primers and LCR probes for the amplification and detection of **human** **papilloma** virus, and related kits and methods; Stanley R. Bouma, et al., 435/5; 536/23.1, 23.72 [IMAGE AVAILABLE]
8. 5,457,189, Oct. 10, 1995, Antisense oligonucleotide inhibition of papillomavirus; Stanley T. Crooke, et al., 536/24.5 [IMAGE AVAILABLE]
9. 5,447,939, Sep. 5, 1995, Detection of **human** **papillomavirus** by the polymerase chain reaction; M. Michele Manos, et al., 435/5, 6, 91.2; 435/501; 536/23.1, 24.3, 24.31, 24.32, 24.33; 935/77, 78, 90 [IMAGE AVAILABLE]
10. 5,427,951, Aug. 1, 1995, Self-assembling recombinant papillomavirus capsid proteins; Douglas R. Lowy, et al., 435/69.1, 252.3, 320.1; 530/250, 403; 536/23.72 [IMAGE AVAILABLE]

11. 5,415,005, May 16, 1995, Diagnostic peptides of **human** papillomavirus; Gary K. Schleinkofer, et al., 435/7.1, 7.35, 236; 514/12; 530/224, 224, 327, 328 [IMAGE AVAILABLE]
12. 5,411,857, May 2, 1995, Probes for papillomaviruses and an in vitro diagnostic procedure for papilloma infections; Sylvie Beaudenon, et al., 435/5, 6; 536/23.72 [IMAGE AVAILABLE]
13. 5,401,627, Mar. 28, 1995, Antibodies to **human** **papillomavirus** latent proteins, diagnostic systems and methods; Joakim Dillner, et al., 435/5, 240.27; 436/518, 548; 530/327.9, 388.3, 389.4 [IMAGE AVAILABLE]
14. 5,364,753, Nov. 15, 1994, Primers and process for detecting **human** **papillomavirus** genotypes by PCR; Christophorus J. Meijer, et al., 435/5, 6, 91.2; 536/24.32, 24.33; 935/78 [IMAGE AVAILABLE]
15. 5,346,811, Sep. 13, 1994, Method and products for **human** **papillomavirus** detection; Ivan Galindo-Castro, et al., 435/5, 6; 530/387.1; 536/24.32 [IMAGE AVAILABLE]
16. 5,342,930, Aug. 30, 1994, Isolated DNA of **human** **papillomavirus** type 54(HPV54); Gerard Orth, et al., 536/22.72; 435/172.3, 320.1; 536/24.32 [IMAGE AVAILABLE]
17. 5,334,515, Aug. 2, 1994, Method for altering a nucleotide sequence; Aysoub Rashtchian, et al., 435/91.2, 91.41, 91.51, 172.3, 227 [IMAGE AVAILABLE]
18. 5,283,171, Feb. 1, 1994, Compositions for and detection of **human** **papillomavirus** by specific oligonucleotide polymerase primers using the polymerase chain reaction; M. Michele Manos, et al., 435/5, 6, 810; 436/501, 811; 536/23.1, 24.3, 24.31, 24.32, 24.33; 935/3, 20, 77, 78, 80 [IMAGE AVAILABLE]
19. 5,194,370, Mar. 16, 1993, Promoter ligation activated transcription amplification of nucleic acid sequences; Mark S. Berninger, et al., 435/6, 91.21; 436/94, 501; 935/77, 78 [IMAGE AVAILABLE]
20. 5,182,377, Jan. 26, 1993, Probes for detection of **human** **papillomavirus**; M. Michele Manos, et al., 536/24.32; 435/5, 6; 436/501, 811; 536/24.33; 935/3, 20, 77, 78 [IMAGE AVAILABLE]
21. 5,180,026, Jan. 19, 1993, Polypeptides and compositions of **human** **papillomavirus** latent proteins, diagnostic systems and methods; Joakim Dillner, et al., 530/326, 324, 325 [IMAGE AVAILABLE]
22. 5,169,766, Dec. 8, 1992, Amplification of nucleic acid molecules; David M. Schuster, et al., 435/91.2, 6, 91.21, 193, 194 [IMAGE AVAILABLE]
23. 5,057,411, Oct. 15, 1991, Type-specific papillomavirus DNA sequences and peptides; Wayne D. Lancaster, et al., 425/6, 5; 436/501, 811; 536/23.72, 24.32; 935/78 [IMAGE AVAILABLE]
24. 5,045,447, Sep. 3, 1991, Method of producing antibodies to **HPV**; Anthony C. Minson, 435/5; 422/61; 435/7.92; 436/548; 935/110 [IMAGE AVAILABLE]
25. 4,983,728, Jan. 8, 1991, Nucleic acid probes of **human** **papilloma** virus; Albert Herzog, et al., 435/5, 91.2, 948; 436/501, 811; 536/23.72, 24.32; 935/9, 16, 17, 78, 88 [IMAGE AVAILABLE]
26. 4,986,741, Dec. 12, 1991, Use of volume exclusion agents for the enhancement of in situ hybridization; Dennis E. Schwartz, 435/5, 4, 21, 812; 436/501; 935/77, 78 [IMAGE AVAILABLE]

27. 4,777,230, Oct. 11, 1990, Diagnostic peptides of *~~the human~~*
**papillomavirus; Camy M. Cahnleik, et al., 530/220, 327, 220, 327.0,
220.4, 220.7, 320.0, 320.3; 930/220, DIS.011 [IMAGE AVAILABLE]

28. 4,551,270, Nov. 5, 1985, DNA Fragments coding for polypeptides
containing at least one antigenic determinant of the papillomavirus,
particularly of the **HPV** 16 type and corresponding polypeptides;
Olivier Danos, et al., 530/227, 320; 930/220, DIS.011 [IMAGE AVAILABLE]

=> d 1

1. 5,437,951, Aug. 1, 1995, Self-assembling recombinant papillomavirus
capsid proteins; Douglas R. Lowy, et al., 435/69.1, 252.3, 320.1;
530/350, 403; 536/23.72 [IMAGE AVAILABLE]

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U.S. Patent & Trademark Office SESSION SUSPENDED AT 12:26:34 ON 25 SEP 199
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=>
=> s papillomavirus
L1          62 PAPILLOMAVIRUS

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L2          19249 "L1"

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MISSING OPERATOR 'L1 AMD'

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L3          6 L1 AND L2

=> d  13 1-6

1. 5,194,370, Mar. 16, 1993, Promoter ligation activated transcription amplification of nucleic acid sequences; Mark S. Berninger, et al., 435/6, 91; 436/94, 501; 935/77, 78 [IMAGE AVAILABLE]

2. 5,182,377, Jan. 26, 1993, Probes for detection of human papillomavirus; M. Michele Manos, et al., 536/24.32; 435/5, 6; 436/501, 811; 536/24.33; 935/3, 20, 77, 78 [IMAGE AVAILABLE]

3. 5,180,806, Jan. 19, 1993, Polypeptides and compositions of human Papillomavirus latent proteins, diagnostic systems and methods; Joakim Dillner, et al., 530/326, 324, 325 [IMAGE AVAILABLE]

4. 5,057,411, Oct. 15, 1991, Type-specific papillomavirus DNA sequences and peptides; Wayne D. Lancaster, et al., 435/6, 5; 436/501, 811; 536/23.72, 24.32; 935/78 [IMAGE AVAILABLE]

5. 4,886,741, Dec. 12, 1989, Use of volume exclusion agents for the enhancement of in situ hybridization; Dennis E. Schwartz, 435/5, 6, 21, 810; 436/501; 935/77, 78 [IMAGE AVAILABLE]

6. 4,551,270, Nov. 5, 1985, DNA Fragments coding for polypeptides containing at least one antigenic determinant of the papillomavirus, particularly of the HPV 1a type and corresponding polypeptides; Olivier Danos, et al., 530/327, 329; 930/220, DIG.811 [IMAGE AVAILABLE]

=> d  13 1-6 ab
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US PAT NO: 5,194,370 [IMAGE AVAILABLE]

L3: 1 of 6

ABSTRACT:

This invention relates to a method for detecting the presence of a papillomavirus in a sample.

This invention discloses a scheme for producing nucleic acid products that are functionally or exactly identical to the starting products, thereby resulting in exponential amplification of a desired nucleic acid sequence. Specifically, sequences are cycled between RNA and DNA forms using the following basic steps: (1) a T7 RNA polymerase promoter is ligated onto a single-stranded DNA template; (2) T7 RNA polymerase makes many copies of RNA; (3) a complementary DNA is made from the RNA by extension of a primer by reverse transcriptase; and (4) the RNA template is removed by ribonuclease H. This amplification method is useful for purposes such as genetic research and diagnostic assays.

US PAT NO: 5,182,377 [IMAGE AVAILABLE]

L3: 2 of 6

5/7/1

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Vaccination with yeast-expressed cottontail rabbit papillomavirus (CRPV) virus-like particles protects rabbits from CRPV-induced papilloma formation.

Jansen KU; Rosolowsky M; Schultz LD; Markus HZ; Cook JC; Donnelly JJ; Martinez D; Ellis RW; Shaw AR

Department of Virus and Cell Biology, Merck Research Laboratories, West Point, PA 19486, USA.

Vaccine (ENGLAND) Nov 1995, 13 (16) p1509-14, ISSN 0264-410X

Journal Code: X60

Languages: ENGLISH

Document type: JOURNAL ARTICLE

Papillomaviruses infect epithelia of the skin and mucous membranes and cause benign or malignant tumours in animals and in humans. The viruses are highly species-specific, and cell culture systems for propagating human papillomaviruses (HPVs) do not exist. However, there are several animal papillomavirus models. In the cottontail rabbit papillomavirus (CRPV) system, we demonstrated that recombinant CRPV virus-like particles (VLPs) consisting of the capsid proteins L1 or L1+L2 can be produced in the yeast *Saccharomyces cerevisiae*. Three immunizations with L1 VLPs formulated on aluminum adjuvant at 1-100 micrograms dose-1 efficiently protected rabbits from challenge with CRPV. Sera of immunized rabbits were shown to contain high-titered serum antibodies to CRPV L1 VLPs and to neutralize CRPV in vitro. Our results suggest that recombinant yeast-derived VLPs could be the basis for a candidate HPV vaccine.

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09367152 95297152
Sequence determination of human papillomavirus type 6a and assembly of virus-like particles in *Saccharomyces cerevisiae*.

Hofmann KJ; Cook JC; Joyce JG; Brown DR; Schultz LD; George HA; Rosolowsky M; Fife KH; Jansen KU

Department of Virus and Cell Biology, Merck Research Laboratories, West Point, Pennsylvania 19486, USA.

Virology (UNITED STATES) Jun 1 1995, 209 (2) p506-18, ISSN 0042-6822
Journal Code: XEA

Languages: ENGLISH

Document type: JOURNAL ARTICLE

Human papillomavirus 6a (HPV6a), the most abundant HPV6 subtype, was detected in a vulvar condyloma acuminatum. The complete genome of HPV6a was cloned, and its DNA sequence was shown to be over 97% identical to the HPV6b sequence. Of the eight open reading frames (ORFs) of HPV6a, only the imputed amino acid sequence of the major capsid protein L1 was identical to the corresponding HPV6b sequence; all other HPV6a ORFs showed amino acid changes compared to the HPV6b ORFs. The HPV6a L1 or the L1 + L2 ORFs were expressed in the yeast *Saccharomyces cerevisiae*. Self-assembly of the L1 capsid protein into virus-like particles (VLPs) was demonstrated both in the L1 as well as L1 + L2 coexpressing yeast strains. Copurification of the L1 and L2 proteins showed complex formation of the L1 and L2 proteins in the yeast-derived VLPs of coexpressing strains.

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SEARCH ENDED BY USER

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=> s human papillomavirus or HPV

130212 HUMAN
116 PAPILLOMAVIRUS
55 HUMAN PAPILLOMAVIRUS
(HUMAN (W) PAPILLOMAVIRUS)

L4 167 HUMAN PAPILLOMAVIRUS OR HPV

=> s 13 and 14

L5 24 L3 AND L4

=> d 15 1-24

1. 5,495,006, Feb. 27, 1996, Antiviral polynucleotide conjugates; Shane Climie, et al., 536/24.1; 435/5; 536/23.1 [IMAGE AVAILABLE]
2. 5,486,453, Jan. 23, 1996, Antibodies to **human** **papillomavirus** latent proteins, diagnostic systems and methods; Joakim Dillner, et al., 435/5, 7.92, 975; 436/518, 548 [IMAGE AVAILABLE]
3. 5,484,699, Jan. 16, 1996, Nucleotide sequences useful as type specific probes, PCR primers and LCR probes for the amplification and detection of human papilloma virus, and related kits and methods; Stanley R. Bouma, et al., 435/5; 536/23.1, 23.72 [IMAGE AVAILABLE]
4. 5,457,189, Oct. 10, 1995, Antisense oligonucleotide inhibition of papillomavirus; Stanley T. Crooke, et al., 536/24.5 [IMAGE AVAILABLE]
5. 5,447,839, Sep. 5, 1995, Detection of **human** **papillomavirus** by the polymerase chain reaction; M. Michele Manos, et al., 435/5, 6, 91.2; 436/501; 536/23.1, 24.3, 24.31, 24.32, 24.33; 935/77, 78, 88 [IMAGE AVAILABLE]
6. 5,437,951, Aug. 1, 1995, Self-assembling recombinant papillomavirus capsid proteins; Douglas R. Lowy, et al., 435/69.1, 252.3, 320.1; 530/350, 403; 536/23.72 [IMAGE AVAILABLE]
7. 5,415,995, May 16, 1995, Diagnostic peptides of human papilloma

virus; Gary K. Schoolnik, et al., 435/7.1, 7.36, 236; 514/12; 530/324, 326, 327, 328 [IMAGE AVAILABLE]

8. 5,411,857, May 2, 1995, Probes for papillomaviruses and an in vitro diagnostic procedure for papilloma infections; Sylvie Beaudenon, et al., 435/5, 6; 536/23.72 [IMAGE AVAILABLE]

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10. 5,364,758, Nov. 15, 1994, Primers and process for detecting **human** **papillomavirus** genotypes by PCR; Christophorus J. Meijer, et al., 435/5, 6, 91.2; 536/24.32, 24.33; 935/78 [IMAGE AVAILABLE]

11. 5,346,811, Sep. 13, 1994, Method and products for **human** **papillomavirus** detection; Ivan Galindo-Castro, et al., 435/5, 6; 530/387.1; 536/24.32 [IMAGE AVAILABLE]

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19. 5,057,411, Oct. 15, 1991, Type-specific papillomavirus DNA sequences and peptides; Wayne D. Lancaster, et al., 435/6, 5; 436/501, 811; 536/23.72, 24.32; 935/78 [IMAGE AVAILABLE]
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22. 4,886,741, Dec. 12, 1989, Use of volume exclusion agents for the enhancement of in situ hybridization; Dennis E. Schwartz, 435/5, 6, 21, 810; 436/501; 935/77, 78 [IMAGE AVAILABLE]
23. 4,777,239, Oct. 11, 1988, Diagnostic peptides of human papilloma virus; Gary K. Schoolnik, et al., 530/326, 327, 328, 387.9, 389.4, 389.7, 389.8, 391.3; 930/220, DIG.811 [IMAGE AVAILABLE]
24. 4,551,270, Nov. 5, 1985, DNA Fragments coding for polypeptides containing at least one antigenic determinant of the papillomavirus, particularly of the **HPV** 1a type and corresponding polypeptides; Olivier Danos, et al., 530/327, 329; 930/220, DIG.811 [IMAGE AVAILABLE]

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